

D.P.U. 93-29/30

In the Matter of the Petitions of Massachusetts Electric Company pursuant to c. 40A, § 3 of the General Laws for approval by the Department of Public Utilities of an exemption from the operation of the zoning ordinance of the City of Salem for the construction, maintenance and operation of two 23kV transmission lines and associated equipment; and pursuant to G.L. c. 164 § 72, for a determination by the Department that said transmission lines in the City of Salem are necessary and will serve the public convenience and be consistent with the public interest.

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## I. INTRODUCTION

On February 25, 1993, Massachusetts Electric Company ("MECo" or "Company") filed two related petitions with the Department of Public Utilities ("Department"). The first petition, filed pursuant to G.L. c. 40A, § 3, seeks exemptions from the operation of the zoning ordinance of the City of Salem to allow for the construction, operation and maintenance of two proposed 23 kilovolt ("kV") electric transmission lines, and associated equipment,<sup>1</sup> all in the City of Salem.<sup>2</sup> This petition was docketed as D.P.U. 93-29. The second petition, filed pursuant to G.L. c. 164, § 72, seeks a determination by the Department that the same two proposed 23kV electric transmission lines and associated equipment in the City of Salem are necessary and will serve the public convenience and be consistent with the public interest. This petition was docketed as D.P.U. 93-30.

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<sup>1</sup> The Company indicated that the associated equipment to be constructed, operated and maintained in conjunction with the proposed transmission lines would be as follows: (a) the poles, arms, push-brace, guys, anchors, insulators, cables, foundations, and hardware required to support the transmission line phase conductors; and (b) two sets of disconnect switches and lightning arresters that will be installed on each line at the transition from underground to overhead construction (Exh. DPU 1-2).

<sup>2</sup> Specifically, the petition requests that MECo be exempt from the operation of Article VII, Section 7-16 of the Zoning Ordinance of the City of Salem (Exh. DPU 1-1).

The Company proposes to construct, maintain and operate two transmission lines and associated equipment for the transmission of electricity at 23kV, beginning at the Company's existing Railyard #49 substation and continuing underground in a northwesterly direction for a distance of approximately 250 feet to proposed wood-pole riser structures, and then continuing overhead on common structures for a distance of approximately 2,500 feet in a generally southerly direction, to a connection with proposed facilities of the Marblehead Municipal Light Department ("MMLD") (Exhs. MECo-1, at 1; MECo-2, at 1).

The Company indicated that each proposed transmission line would run for a total distance of approximately 2,750 feet, the first 125 feet of underground line on property owned by New England Power Company ("NEPCo"), and the remaining 125 feet of underground line and 2500 feet of overhead line on property owned by the Massachusetts Bay Transportation Authority (Exhs. MECo-1, at 1; MECo-2, at 1). The proposed right-of-way ("ROW") for the proposed transmission lines would extend approximately 0.5 mile within an Industrial District and approximately 0.2 mile in a Wetlands District, as such districts are defined in the by-laws of the City of Salem (Exh. MECo-1, at 2). The Company stated that the use of land for electric transmission and substation facilities is permitted in an Industrial District, but is not a permitted use in a Wetlands District (id.).

MECo stated that the proposed lines would (1) relieve the electric load on the Company's existing 23kV facilities, (2) provide additional electrical capacity and reliable supply to the Company's customers in the Swampscott/Marblehead/Salem area, and (3) enable the Company to provide a dedicated transmission service to MMLD for distribution and sale to their customers in Marblehead (id. at 1; Exh. MECo-2, at 1).<sup>3</sup>

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<sup>3</sup> The Company stated that a satisfactory agreement for dedicated transmission was signed with MMLD on September 27, 1994 (Exh. DPU 2-16).

MECo is a public service corporation and an electric company as defined under G.L. c. 164, § 1, and is authorized to generate, transmit, purchase, sell, and distribute electricity (Exhs. MECo-1, at 1; MECo-2, at 1).

## II. PROCEDURAL HISTORY

Pursuant to an Order of Notice duly issued on August 24, 1994, the Department conducted a joint public hearing in the City of Salem on September 21, 1994 to afford interested persons an opportunity to be heard relative to both D.P.U. 93-29 and D.P.U. 93-30. At the public hearing, the Company presented a summary of the proposed transmission lines and had available various witnesses to respond to community concerns. See Public Hearing Tr.<sup>4</sup>

Pursuant to petitions filed with the Department, status to intervene in both D.P.U. 93-29 and D.P.U. 93-30 was granted to MMLD, Kevin Talbot,<sup>5</sup> and the City of Salem. The joint petition filed by Dorothy E. Crane, Patricia A. Crane, Lois G. Miller, Laurence A. Miller, Gail Tompkins, Claire Letarte,<sup>6</sup> Kathleen A. L'Italien, Susan Dionne,

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<sup>4</sup> Cites to "Public Hearing Tr." refer to the transcript for a public hearing, held September 21, 1994.

<sup>5</sup> The petition of Kevin Talbot to withdraw his intervention was granted by the Hearing Officer on January 25, 1995.

<sup>6</sup> The request to withdraw the petitions to intervene of Gail Tompkins and Claire LeTarte was granted by the Hearing Officer on January 9, 1995.

and Richard Dionne (together "Salem residents") was also granted. In addition, the petition of Nickolas D'Orgettas to participate as an interested person was granted.<sup>7</sup> Thereafter, on January 23, 1995, pursuant to 220 C.M.R. § 109, the Department issued an Order to Consolidate the two proceedings into one docket, D.P.U. 93-29/30.<sup>8</sup>

The Department conducted 2 days of evidentiary hearings. In support of its petitions, the Company sponsored the testimony of five witnesses: Robert D. Sheridan, district planning engineer for the North Shore District of MECo; Gerald A. Pepi, engineer in the Transmission Line Engineering Department of New England Power Service Company; John T. Casey, NEPCo; John Upham, MECo; Frank Smith, Retail Engineering Group, NEPCo; and Deborah E. Weil, Ph.D., principal scientist at Bailey Research Associates. MMLD presented one witness: Richard L. Bailey, general manager of MMLD.

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<sup>7</sup> Petitions to intervene were also received from Patrick D. Foley, Councillor Mark Blair and William Kelly, but were denied by the Hearing Officer. See Hearing Officer Ruling, November 14, 1994.

<sup>8</sup> The Order to Consolidate states that since the two petitions relate to the same transmission lines along the same routes, and because the standards under the two relevant statutes are similar, the two proceedings involve common questions of law and fact. Order to Consolidate at 1.



The evidentiary record includes 66 exhibits primarily consisting of responses to information requests. In addition, the Department also took official notice of seven documents.<sup>9</sup>

### III. STANDARD OF REVIEW

In their petition for a zoning exemption, the Company seeks approval under G.L. c. 40A, § 3, which, in pertinent part, provides:

Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or by-law if, upon petition of the corporation, the [D]epartment of [P]ublic [U]tilities shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public ....

Under this section, the Company first must qualify as a public service corporation (see Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975)), and establish that it requires an exemption from the local zoning by-laws. The Company then must

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<sup>9</sup> Specifically, the Department took official notice of: Massachusetts Municipal Wholesale Electric Company, D.P.U. 92-274 (1994); Massachusetts Electric Company, D.P.U. 94-112 (1994); Massachusetts Electric Company, D.P.U. 92-217-A (1993); Massachusetts Electric Company, D.P.U. 92-217 (1993); Massachusetts Electric Company, D.P.U. 91-205 (1991); Massachusetts Electric Company, D.P.U. 90-261 (1991); and the "Interconnection and Support Agreement Between New England Power Company, Massachusetts Electric Company and Marblehead Municipal Light Department" dated September 7, 1994.

demonstrate that the present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare.

In determining whether a company qualifies as a "public service corporation" for purposes of G.L. c. 40A, § 3, the Supreme Judicial Court has stated:

among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Save the Bay, supra at 680.

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Department must balance the interests of the general public against the local interest. Id. at 685-686; Town of Truro v. Department of Public Utilities, 365 Mass. 407 (1974). Specifically, the Department is empowered and required to undertake a "broad and balanced consideration of all aspects of the general public interest and welfare and not merely [make an] examination of the local and individual interests which might be affected." New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, 592 (1964). When reviewing a petition for a zoning exemption under G.L. c. 40A, § 3, the Department is empowered and required to consider the public effects of the requested exemption in

the State as a whole and upon the territory served by the applicant. Id.; Save the Bay, supra at 685.

With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3 does not require the petitioner to demonstrate that its preferred site is the best possible alternative, nor does the statute require the Department to consider and reject every possible alternative site presented. Martorano v. Department of Public Utilities, 401 Mass. 257, 265 (1987); New York Central Railroad, supra at 591; Wenham v. Department of Public Utilities, 333 Mass. 15, 17 (1955). Rather, the availability of alternative sites, the efforts necessary to secure them, and the relative advantages and disadvantages of those sites are matters of fact bearing solely upon the main issue of whether the preferred site is reasonably necessary for the convenience or welfare of the public. Id.

Therefore, when making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the public convenience or welfare, the Department examines (1) the need for, or public benefits of, the present or proposed use (see New England Power Company, D.P.U. 92-278/279/280, at 19-22 (1994) ("NEPCo, D.P.U. 92-278/279/280"); New England Power Company, D.P.U. 92-270, at 17 (1994) ("NEPCo, D.P.U. 92-270"); Tennessee Gas Pipeline Company, D.P.U. 85-207, at 6-9 (1986) ("Tennessee"); (2) the present or

proposed use and any alternatives identified (see NEPCo, D.P.U. 92-278/279/280, supra at 19; NEPCo, D.P.U. 92-270, supra at 17; Tennessee, supra at 18-20); and (3) the environmental impacts or any other impacts of the present or proposed use (see NEPCo, D.P.U. 92-278/279/280, supra at 20-23; NEPCo, D.P.U. 92-270, supra at 17-20; Tennessee, supra at 20-25).

After examining these issues, the Department balances the interests of the general public against the local interest and determines whether the present or proposed use is reasonably necessary for the convenience or welfare of the public.<sup>10</sup>

With respect to the Company's petition filed pursuant to G.L. c. 164, § 72, the statute requires, in relevant part, that an electric company seeking approval to construct a transmission line must file with the Department a petition for:

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<sup>10</sup> In addition, the Massachusetts Environmental Policy Act provides that "[a]ny determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact." G.L. c. 30, § 61. Pursuant to 301 C.M.R. § 11.01(3), these findings are necessary when an Environmental Impact Report ("EIR") is submitted by a company to the Secretary of Environmental Affairs, and should be based on such EIR. Where an EIR is not required, c. 30, § 61 findings are not necessary. 301 C.M.R. § 11.01(3). In the present case, the record indicates that no EIR was required for the proposed project (Exh. DPU-2), and, therefore, a finding is not necessary in this case under G.L. c. 30, § 61.

authority to construct and use ... a line for the transmission of electricity for distribution in some definite area or for supplying electricity to itself or to another electric company or to a municipal lighting plant for distribution and sale ... and shall represent that such line will or does serve the public convenience and is consistent with the public interest .... The [D]epartment, after notice and a public hearing in one or more of the towns affected, may determine that said line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest.<sup>11</sup>

The Department, in making a determination under c. 164, § 72, is to consider all aspects of the public interest. Boston Edison Company v. Town of Sudbury, 356 Mass. 406, 419 (1969). Section 72, for example, permits the Department to prescribe reasonable conditions for the protection of the public safety. Id. at 419-420. All factors affecting any phase of the public interest and public convenience must be weighed fairly by the Department in a determination under G.L. c. 164, § 72. Town of Sudbury v. Department of Public Utilities, 343 Mass. 428, 430 (1962).

As the Department has noted in previous cases, the public interest analysis required by G.L. c. 164, § 72 is analogous to the Department's analysis of the "reasonably necessary for the convenience or welfare of the public" standard under G.L. c. 40A, § 3. See New England Power

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<sup>11</sup> Pursuant to the statute, the electric company must file with its petition a general description of the transmission line, provide a map or plan showing its general location, and estimate the cost of the line in reasonable detail. G.L. c. 164, § 72.

Company, D.P.U. 89-163, at 6 (1993); New England Power Company, D.P.U. 91-117/118, at 4 (1991); Massachusetts Electric Company, D.P.U. 89-135/136/137, at 8 (1990). Accordingly, in evaluating petitions filed under G.L. c. 164, § 72, the Department relies on the standard of review for determining whether the proposed project is reasonably necessary for the convenience or welfare of the public under G.L. c. 40A, § 3. Id.<sup>12</sup>

#### IV. DESCRIPTION

##### A. Need for the Proposed Project

The Company stated that need for the proposed project was identified in its August, 1991 Swampscott-Marblehead Area Supply Study ("Supply Study") (Exh. MECo-3, at 2). The Company indicated that the Supply Study was conducted because of heavy loading of the existing area supply system and because of MMLD's request for a review of a dedicated supply plan (id.; Exhs. DPU 1-5, att. at 1-2; MMLD-1, at 2-3).<sup>13</sup>

The Supply Study indicated that the Company's 2370 and 2372 lines, the two 23kV lines serving the supply area, were both heavily

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<sup>12</sup> In addition, G.L. c. 30, § 61 findings are necessary unless, as in the present case, an EIR is not required. See n.10, supra.

<sup>13</sup> MECo stated that it sought to provide dedicated service to MMLD, a transmission-dependent utility, consistent with the Company's obligations under Part II of the Federal Power Act to negotiate in good faith with transmission-dependent utilities which request specific transmission services (Exhs. MECo-3, at 4-5).

loaded and added that the existing peak load on the 2370 line exceeded its summer normal capability, while that on the 2372 line exceeded its summer emergency capability in case of a loss of the 2370 line (Exhs. MECO-3, at 2-3; DPU 1-5, att. at 2). The Company further indicated that, based on projected load growth, the Lynn #21 substation, which supplies the 2372 circuit, would become non-firm in the year 1997 (Exhs. MECO-3, at 3; DPU 1-7).

MECO stated that at the time of the Supply Study, the Company concluded that demand side management programs would not reduce local load to the point where there was no longer need for the proposed transmission upgrades (Exh. DPU 2-13). The Company stated that it based its conclusion on its load forecasts, which integrated effects of the Company's conservation and load management programs, both instituted and projected (id.). The Company indicated that at the time of the Supply Study it was strongly promoting, for all its customers, the conservation and load management programs then commonly practiced (id.; Tr. 1,<sup>14</sup> at 90-92).

The Company asserted that completing the project as proposed would provide sufficient 23kV transmission capability for both normal and contingency loading well into the future (Exhs. MECO-3, at 3-4;

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<sup>14</sup> Cites to "Tr. 1" and "Tr. 2" refer to transcripts for the first or second of two adjudicatory hearings held in connection with the present proceedings, respectively.

DPU 1-7). MECo also stated that the proposed project would transfer approximately 10 mega volt-amperes ("MVA") from the Lynn #21 substation to the Railyard #49 substation,<sup>15</sup> and that it expected this load transfer to defer significant upgrades at the Lynn #21 substation until beyond the year 2000 (Exhs. MECo-3, at 4; DPU 1-7).

B. The Proposed Project and Alternatives

The Company stated that the proposed project was selected on the basis of the 1991 Supply Study for the Swampscott/Marblehead area, which indicated that reducing the loading of circuits 2370 and 2372 would relieve the overloaded 23kV system in the area of the Supply Study through the year 2004 (Exhs. MECo-3, at 2-4; DPU 1-5, att. at 2). The Company indicated that, at the time of its Supply Study, it considered two basic supply source alternatives for providing additional 23kV capacity to the Swampscott/Marblehead area, the first alternative based on improvements to an existing substation on Mussolini Road in Salem, identified as West Salem #29, and the second based on construction of a new substation between Jefferson Avenue

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<sup>15</sup> MECo informed the Department that it had constructed a substation, identified as the Railyard #49 substation, as recommended by the Company's 1991 Supply Plan, and that construction of the substation was completed prior to any and all hearings held by the Department as part of its review of the Company's petitions in the instant proceeding (Public Hearing Tr. at 12). The Department notes that MECo did not need Department approval to construct the Company's Railyard #49 substation.



and Canal Street in Salem, identified as Railyard #49 (Exhs. MECo-3, at 4; DPU 1-5).

The Company indicated that the proposed project is part of a larger plan based on construction of the Railyard #49 substation and related improvements to the 2370 circuit, some of which have already been implemented ("Selected Plan") (Exhs. MECo-3, at 3-4; DPU 1-5, att.). The Company indicated that it had also considered a second plan based on construction of the Railyard #49 substation, involving 23kV system improvements in both Salem and Swampscott ("Area Plan") (Exhs. MECo-3, at 4; DPU 1-5, att.).

With respect to the Selected Plan, the Company indicated that the already completed modifications to the existing 2370 circuit allowing that line to be supplied via the Railyard #49 substation had relieved overloading of the 2370 circuit under normal operations (Exh. MECo-3, at 3). The Company indicated that additional measures are necessary to provide adequate capacity for contingency loading under the Selected Plan (id.; Exh. DPU 1-5, att. at 5-6). The Company stated that under the existing arrangement, in which the 2370 and 2372 circuits are sole back-up facilities for each other, the Company had identified several load concerns during summer peak loading conditions: (1) summer peak normal loading of the 2370 circuit exceeded the rating of the underground cable leaving the Salem #1

substation, and, in addition, in the event of the loss of the 2372 circuit from the Lynn #21 substation, the 2370 circuit would exceed its short term emergency rating; (2) in the event of the loss of the 2370 circuit, loading of the 2372 circuit would exceed its short term emergency rating; (3) loss of one of the three 23kV circuits supplying the Salem #1 substation, which, in turn, supplies four additional 23kV circuits (including the 2370), would result in loading the remaining two circuits in excess of their short term emergency ratings; and (4) the Lynn #21 substation, which supplies the 2372 circuit, would become non-firm in the year 1997 based on projected load growth (Exh. MECo-3, at 3).

The Company stated that the proposed construction of two 23kV lines from the Railyard #49 substation to an interconnection with facilities owned and operated by MMLD would reduce the contingency loading on both the 2370 and the 2372 circuits such that capacity on each circuit would be adequate in the event that the other circuit went out-of-service (id.; Exh. DPU 1-5, att. at 5-6). The Company stated that the proposed project would result in a peak load reduction of 20 MVA at the Salem #1 substation and 10 MVA at the Lynn #21 substation, thus rendering both substations firm for the loss of either the 2370 or the 2372 line (Exhs. MECo-3, at 4; DPU 1-5, att. at 6).

With respect to alternative plans, the Company stated that the Area Plan, as detailed in the Supply Study, called for installation of one new 23kV line from a substation to be located at the present Railyard #49 substation location to an existing tap line to MMLD (id.). The Company stated that, in addition, 23kV facilities in Swampscott would be modified to provide supplementary capacity in order to firm the Marblehead load into the next century (id.). The Company indicated that the Area Plan would not provide dedicated service to MMLD because the two 23kV circuits serving MMLD would also serve three other loads (id.).

With regard to alternative plans drawing upon the West Salem #29 substation to provide additional 23kV capacity to the Swampscott/Marblehead area, the Company indicated that it considered expanding the existing West Salem substation by installing a second 30/40/50 MVA 115/23kV transformer to tap the local T146 115kV line (Exh. DPU 1-5, att. at 2-3). The Company stated that the West Salem #29 substation alternatives would also require installation of a new 23kV line extending 9,800 feet, or approximately 1.9 miles, from the West Salem substation to just south of the Danvers Road substation where it would connect with the existing 2370 line (id. at 2-3, 7). The Company indicated that, even if the West Salem #29 substation were expanded and the new 23kV line installed, additional reinforcements of

the 23kV system and/or new cables would subsequently be required (id.). The Company stated that, in general, routing of new lines from the West Salem substation would follow city streets (id.). The Company contrasted this routing to that of new lines from the Railyard #49 substation which would run along the westerly edge of railroad freight yards and then along an existing railroad corridor next to an existing electric transmission line (id.; Tr. 2, at 18).

The Company stated that the cost of the Selected Plan would be comparable to that of other evaluated plans (Exhs. MECo-3, at 4; DPU 1-5, att. at 3-11). The Company indicated that, in light of its assessment that costs would be comparable, the Company preferred the proposed plan over the studied alternative plans because the proposed plan afforded future distribution advantages, as well as the ability to satisfy MMLD's request for dedicated service (Exhs. MECo-3, at 4; DPU 1-5; DPU 1-6). The Company stated that it also preferred the proposed project because the new lines would be placed along railroad corridors rather than in city streets (Exhs. MECo-3, at 4; DPU 1-5). The Company asserted that such placement of the new lines was advantageous because it would both improve reliability and allow for the expansion of distribution facilities to accommodate load growth in the City of Salem (Exhs. MECo-3, at 4; DPU 1-5).

The Company also provided information regarding four route variations it had considered for the two 23kV lines it proposes to construct from the Railyard #49 substation to the proposed interconnection with MMLD (Tr. 2, at 17-18). These variations included an overhead route along Canal Street; an underground route along Canal Street; a route between and parallel to Canal Street and the commuter rail ROW owned by the Massachusetts Bay Transportation Authority ("MBTA"); and, finally, an underground route along the same MBTA commuter rail ROW (id.). The Company stated that the four above-described route variations were less attractive than the proposed route because of cost, visual impact, and maintenance concerns (id.).

### C. Impacts of the Proposed Project

In accordance with its responsibility to undertake a broad and balanced consideration of all aspects of the general public interest and welfare, the Department examines the impacts associated with the proposed project to identify any significant impacts that would likely occur during construction and operation of the proposed substation upgrade.

#### 1. Electric and Magnetic Fields ("EMF")

The Company stated that the proposed new lines would incorporate an arrangement and spacing of construction which would minimize magnetic field levels (Exhs. DPU 1-11; MECo-3, at 5; Tr. 2, at

103). The Company provided calculations indicating that total magnetic field levels at the property lines of the railroad along the proposed route of the new lines had been calculated to be lower with the installation of the proposed new circuits than with the operation of the existing electric facilities in the area (Exhs. DPU 1-11; DPU 2-25(a)(sup); MECo-3, at 5; Tr. 2 at 96-103).<sup>16</sup>

The Company also indicated that, based on magnetic field measurements taken by the Company,<sup>17</sup> an existing 4160 volt distribution line is currently the primary source of magnetic fields along the eastern edge of the proposed route without the proposed project. The Company added that the same circuit would continue to be the primary source of magnetic fields at the identified location after the proposed project was completed (Exh. DPU 2-25(b)).

Attendees at the public hearing questioned whether the proposed lines could be relocated along the proposed route such that they would be further away from existing residences and businesses, or whether the

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<sup>16</sup> The Company calculated that magnetic field levels in milligauss ("mg") at the property lines of the railroad would range from 0.7 to 29.3 mg with the proposed project and from 2.4 to 29.6 mg without the proposed project.

<sup>17</sup> At the request of the Department and resident abutters, the Company provided magnetic field measurements taken at the property edge closest to the Company's existing transmission lines at each of three locations along the proposed route (Exh. DPU 2-25(b)).

lines could be placed underground. The Company indicated that greater separation of the proposed lines from abutting land uses was not possible, explaining that placement of poles for the proposed transmission lines was, on one side, confined by an existing powerline and right-of-way property line and, on the other side, by the Boston & Maine and the MBTA railroad tracks (Tr. 2, at 105-106). With respect to reducing magnetic fields by laying the proposed transmission lines underground, the Company stated that the ground provided little or no shielding from magnetic fields (Exh. DPU 2-27; Tr. 1, at 17-18).

The Company indicated that a number of states had adopted EMF guidelines, but stated that no federal standards or exposure guidelines had been enacted (Exh. DPU 2-24(b)). In addition, the Company indicated that some states had mandated or recommended that electric utilities design facilities to minimize EMF levels and that other states, including Massachusetts, had encouraged the use of best available control technology and/or the inclusion of EMF levels as an additional

design consideration (id.).<sup>18</sup> The Company indicated that it was unaware of the establishment of specific transmission setback requirements at either the state or federal level (id.).

## 2. Noise

The Company stated that under normal operating conditions, operation of the proposed lines would generate no noise (Exh. MECO-3, at 5). In response to testimony at the public hearing regarding existing noise at the site, the Company stated that an "animal protection" system installed at the Railyard #49 substation to ward off birds and other animals was a source of noise in the area (Public Hearing Tr. at 86, 99). The Company indicated that it had disabled the animal protection system at the Railyard #49 substation and had thus eliminated the noise associated with the bird guards (Exh. DPU 2-29; Tr. 2, at 45-46).

## 3. Wetlands

The Company stated that it proposes installing four single wood-pole structures within the wetland overlay district of the City of Salem (Exhs. MECO-1, att. B; MECO-4, att. GAP-1; DPU 1-1(a) at 38-41;

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<sup>18</sup> The Company provided magnetic field calculations for the proposed project which were well below the magnetic field guidelines in the two states that have established such guidelines (Exhs. DPU 2-24(b); DPU 2-25(a)(sup) att. 2). The calculations provided by the Company were made at the right-of-way edges for four cross-sections of the proposed project route (Exh. DPU 2-25(a)(sup) att. 2).



Tr. 2, at 20-21). The Company indicated that two guy-lines would be attached to one of the poles, and that a wood-pole push-brace would be attached to another of the poles (Tr. 2, at 21). The Company stated that three of the four structures, including the push-brace but not the two guy-lines, would be located within a 100-foot wetland buffer strip, but that none of the facilities would be located within a wetland (id.).<sup>19</sup>

MECo stated that a Company wetlands expert had defined the wetlands boundary in the vicinity of the proposed project on the basis of field investigations and land surveys (Exh. DPU 2-20(a)(sup); Tr. 2, at 42-43).

The Company indicated that the wood push-brace in the wetland buffer zone would be installed in an area of phragmites and that there would be some temporary disturbance of vegetation and possibly of wildlife at that location (Tr. 2, at 84-85). The Company stated that the area disturbed for the wood push-brace would be restored to the same condition as existed prior to the construction (id.).

The Company indicated that the four wood-pole structures within the City of Salem wetland overlay district would be pressure-treated against insects and decay with an EPA-registered pesticide,

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<sup>19</sup> The Company stated that the three wood-pole structures to be located within the wetland buffer area would be 27, 27.5, and 60 feet from the wetland boundary, respectively (Exh. DPU 2-20(a)(sup)).

pentachlorophenol ("penta") (Exh. 2-20(b)). The Company indicated that penta is an acidic phenol which is relatively insoluble in water and that it was the Company's normal practice to use penta-treated poles in wetlands and wetland buffer zones (id.).

The Company stated that there would be no increase in storm water runoff volume or velocity in wetland areas or buffer zones as a result of the proposed project (Tr. 2, at 21). The Company also stated that it would install hay bales to prevent any construction-related siltation of the wetland and that it would leave the hay bales in place until the disturbed area had revegetated (id.). The Company further indicated that no hazardous materials would be stored within a wetland or wetland buffer zone in connection with the proposed project (Exh. DPU 2-22).

The Company indicated that it has filed a Request for Determination of Applicability with the Salem Conservation Commission ("Conservation Commission") for the installation of structures within 100 feet of wetlands (Exhs. DPU 1-8; DPU 2-20(a)(sup); DPU 2-23; Tr. 2, at 19). The Company further stated that the filing with the Conservation Commission was being timed to allow

for a decision by the Conservation Commission prior to the completion of the Department's review of the proposed project (Exh. DPU 2-23).<sup>20</sup>

#### 4. Visual

The Company indicated that it had been sensitive to the possible visual impact of the proposed project, as reflected in its rejection of a number of alternatives in large part on the basis of visual impact (Tr. 2, at 16-19). The Company also stated that it had studied underground routes, but indicated that it considered visual impact benefits of underground routes to be outweighed by cost, construction and reliability concerns (id. at 16-18).

The Company stated that the proposed route is generally away from most residences and from traffic, and that, in addition, it follows the route of an existing 23kV transmission line (id. at 18-19). The Company indicated that there are no options, such as new designs or special coloration for poles and spacer cables, which would afford additional improvement in the aesthetics of the proposed project (id. at 36-37).

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<sup>20</sup> The Company informed the Department that, on February 23, 1995, the Conservation Commission issued a Determination of Applicability, with conditions, regarding the Company's proposed work in the buffer zone of a wetland area. The Department notes that the Determination is valid for three years from the date of issue.

In order to help screen the transformer and proposed transmission lines from abutting neighborhoods and Canal Street in the City of Salem, the Company stated that it had agreed to provide plantings of evergreen trees within a strip bounded by Canal Street on the east and the commuter rail right-of-way fence on the west (id. at 69-70). The Company indicated, however, that the land identified for screening was owned by the MBTA and that the Company would therefore need the MBTA's permission before screening could proceed (id. at 70). MECo stated that, assuming the MBTA gave the requisite permission, the Company would also work with the City of Salem and with abutters along Canal Street to provide some screening of the Railyard #49 substation (id.).

The Company indicated that a bike path is planned along a portion of the proposed route in Salem, and stated that it would work with the City of Salem to provide screening, or, to ensure "at least ... that the powerlines and the bike path can exist in harmony" (id. at 37-38). The Company indicated that its arborist and the City of Salem could jointly select plantings to minimize visual impacts of the proposed project to the planned bike path (id. at 55-57). MECo asserted that constructing the proposed transmission lines underground in the area where the proposed project would coincide with the planned bike path was not justified (id. at 28-29). The

Company stated that reliability of the proposed lines would be the same whether they were constructed entirely overhead or with an underground segment in the vicinity of the bike path (id. at 34). The Company indicated, however, that such partial underground construction of the proposed lines would add \$250,000 to the cost of construction (id. at 28).

5. Other

The Company stated its willingness to address any safety concerns or conflicts that might arise if the bike path in Salem is constructed along portions of the proposed route, as planned (Exh. DPU 2-30; Tr. 2, at 25, 36-37). The Company indicated that, due to protective fencing around its facilities and the relative locations of the proposed project and the planned bike path, it did not anticipate bicyclists or other individuals gaining illegal access to the proposed transmission lines or related equipment (Tr. 2, at 44-45).

With respect to impacts on vehicular and pedestrian traffic from the proposed project, the Company stated that the proposed project would be generally away from most residences and away from traffic (id. at 19). The Company further stated that the proposed installation would be located along the edge of an operating railroad ROW and would not restrict vehicular or pedestrian movement on nearby streets or property (id. at 22). The Company also indicated that the volume of

project traffic to the proposed site during and after construction would not affect traffic in the area under normal conditions (Exh. MECo-5).

MMLD, an intervenor in the present proceedings, presented a case in support of MECo's petitions. Testimony and evidence submitted by MMLD reiterated and reinforced the Company's position that the proposed project was necessary and superior to other alternatives for meeting the Company's and MMLD's 23kV supply and transmission needs in the Swampscott/Salem/Marblehead area (Exh. MMLD-1; Tr. 2, 108-143). In addition, MMLD indicated that the proposed project takes into consideration the Company's obligations to MMLD as a transmission-dependent utility (id.).

#### V. ANALYSIS AND FINDINGS

MECo is an electric company as defined by G.L. c. 164, § 1, authorized to generate, distribute and sell electricity. Massachusetts Electric Company, D.P.U. 92-232, at 17 (1994). Accordingly, the Company is authorized to petition the Department as a public service corporation for the determinations sought under both G.L. c. 40A, § 3, and G.L. c. 164 § 72, in this proceeding.

G.L. c. 40A, § 3, authorizes the Department to grant to public service corporations exemptions from local zoning ordinances or by-laws if the Department determines that the exemption is required and finds that the present or proposed use of the land or structure is

reasonably necessary for the convenience or welfare of the public. With respect to the Company's petition pursuant to G.L. c. 40A, § 3, as discussed in Section I, above, the Company seeks exemptions from the operation of Article VII, Section 7-16 of the zoning ordinance of the City of Salem. Based on its review of this section of the ordinance, the Department concludes that this section could impede the Company's construction, maintenance and operation of the two proposed 23kV electric transmission lines and associated equipment. Therefore, the Department finds that the Company's proposed transmission lines and associated equipment require the petitioned exemptions from operation of Article VII, Section 7-16 of the zoning ordinance of the City of Salem.

Next, under G.L. c. 40A, § 3, the Department examines whether the Company's proposed use of the land and structures as set forth in its petitions is reasonably necessary for the convenience or welfare of the public.

With respect to the need for, and the public benefits of, the proposed project, the Company has established that the proposed 23kV transmission lines and associated equipment will provide benefits by providing additional electrical capacity and reliable supply to the Company's customers in the Swampscott/Marblehead/Salem area, and by enabling the Company to provide a dedicated transmission service to MMLD for distribution and sale to their customers in Marblehead.

In addition, the record indicates that MECo evaluated a reasonable range of alternatives to the proposed project in developing a strategy to supply its service territory with a reliable and efficient supply of electric power.

The record further indicates that the Company has considered possible environmental and land use impacts of the proposed transmission lines and associated equipment that may be of concern to the surrounding community, including EMF, noise, wetland and visual impacts. Specifically, with respect to EMF, the record indicates that potential magnetic field impacts to area residences and businesses have been minimized by the use of placement and spacing of transmission line cable. The record further indicates that the Company will work with the City of Salem, abutters and, as necessary, the MBTA, to develop a landscaping plan to help screen the proposed transmission line and associated equipment from nearby streets and residences. With respect to a bike path planned by the City of Salem, the record indicates that the Company will work with the City of Salem to address the City of Salem's visual impact and safety concerns.

Thus, with the implementation of the mitigation measures proposed by the Company supra, and those required in Section VI, infra, the Department finds that the general public interest in the construction, operation and maintenance of the two proposed 23kV



transmission lines and associated equipment from the Company's Railyard #49 substation in Salem to a connection point with proposed facilities of the MMLD outweighs the minimal impacts of the Company's proposed project on the local community. Accordingly, the Department finds that the proposed transmission lines and associated equipment are reasonably necessary for the convenience or welfare of the public.

In addition, pursuant to Chapter 164, § 72, of the General Laws, a company wishing to build a transmission line is required to file with the Department a petition for authority to construct and use a line for the transmission of electricity for distribution or for supplying electricity to itself. The Department must determine, after the prescribed notice and public hearing, whether "[the] line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest." G.L. c. 164, § 72. In making its determination under c. 164, § 72, the Department must consider and weigh all factors affecting any aspect of the public interest and public convenience. Boston Edison Company v. Town of Sudbury, 356 Mass. at 419; Town of Sudbury v. Department of Public Utilities, 343 Mass. at 430. The Department notes that in its filing under c. 164, § 72, the Company has complied with the requirement of § 72 that it describe the

proposed transmission lines, provide diagrams showing their general location, and estimate their cost in reasonable detail.

As stated above in Section III, the Department relies on the standard of review for determining whether the proposed project is reasonably necessary for the convenience or welfare of the public under G.L. c. 40A, § 3, in evaluating petitions filed under G.L. c. 164, § 72. Therefore, based on the record in this proceeding, and the above analysis, and with implementation of the mitigation measures proposed by the Company and required in Section VI, infra, the Department finds, pursuant to G.L. c. 164, § 72, that the two proposed 23kV electric transmission lines and associated equipment are necessary for the purpose alleged, will serve the public convenience, and are consistent with the public interest.

VI. ORDER

Accordingly, after due notice, hearing and consideration, it is hereby

ORDERED: That the Company's petitions, D.P.U. 93-29 and D.P.U. 93-30, be allowed and that the proposed additions and related facilities, as described in the Company's exhibits on file with the Department, be exempt from the operation of Article VII, Section 7-16 of the Zoning Ordinance of the City of Salem, pursuant to G.L. c. 40A, § 3, to the extent that the additions and related facilities are used for electric power transmission purposes; and it is

FURTHER ORDERED: That the two proposed 23kV transmission lines and associated equipment, as described in the Company's petition and exhibits, are necessary for the purposes alleged by the Company, and will serve the public convenience and are consistent with the public interest pursuant to G.L. c. 164, § 72; and it is

FURTHER ORDERED: That the Company shall comply with the following requirements:

(1) That the Company shall implement all mitigation measures proposed by the Company in this proceeding;

(2) That, when the final route of the planned bike path in the City of Salem is determined, the Company shall work with the City of Salem, the MBTA and other entities, as appropriate, to ensure that the

proposed transmission lines and associated equipment present no safety hazards to those using the bike path, and that the Company, in cooperation with said entities, shall consider and take measures, including tree and bush planting, but not excluding other measures, as needed, to provide screening of the proposed transmission lines and associated equipment from the bike path;

(3) That the Company, in cooperation with the City of Salem, the MBTA and other entities, as appropriate, shall consider and take measures, including tree and bush planting, but not excluding other measures, as needed, to provide screening of the proposed transmission lines and associated equipment from the view of abutters and passing traffic;

(4) That the Company shall take all necessary measures to preclude unauthorized entry to the immediate vicinity of the proposed transmission lines and associated equipment, both during and after construction hours;

(5) That the Company shall take all necessary measures to ensure that any disruptions to local traffic due to the construction at the proposed installation site are minimized to the greatest extent possible;

(6) That the Company shall take all necessary measures to ensure that construction equipment and materials do not arrive at the proposed installation site before 7 a.m. on any day and that noise from

construction activities or movement of construction equipment at the proposed installation site ceases no later than 6 p.m.; and

(7) That, after installation of the proposed facilities, the Company shall provide measurements of magnetic fields at the residences of abutters and at abutting commercial sites as requested by resident and commercial abutters; and it is

FURTHER ORDERED: That the Company shall obtain all other governmental approvals necessary for this project before its construction commences; and it is

FURTHER ORDERED: That the Secretary of the Department shall transmit a certified copy of this Order to the City Clerk of the City of Salem; and that Massachusetts Electric Company serve a copy of this Order upon the Conservation Commission, Planning Board, and Board of Aldermen of the City of Salem within five business days of its issuance and shall certify to the Secretary of the Department within ten business days of its issuance that such service has been accomplished.

By Order of the Department,

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Kenneth Gordon, Chairman

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Mary Clark Webster,

Commissioner



Appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. (Sec. 5, Chapter 25, G.L. Ter. Ed., as most recently amended by Chapter 485 of the Acts of 1971).